

HOW DO POLICYMAKERS DEAL WITH CLIMATE CHANGE? - THE CASE STUDY OF THE MALDIVES

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ABSTRACT: The Maldives lies in two rows of atolls in the Indian Ocean, just across the equator. It has a history of monarchical political systems built on undemocratic constitutional rules that have evolved over eight centuries (1153-1953) of recorded history. It established its first-ever democratic constitution in 2008. For politicians and environmentalists around the world, the Maldives is perhaps better known as islands drowning with the rising sea levels as a result of global warming. Since climate change is a cross-cutting development issue and affects every aspect of the Maldivian way of life and livelihoods, the Maldivian government attempted to address vulnerable sectors and defined several strategies that could prevent the country from the negative effects of climate change and sea level rise. In order to reach the mentioned goal, considering stakeholders' interaction is a key strategy in research and policy-making on climate change adaptation. Stakeholders are variously characterized as authorities, evaluators, watchdogs, local communities, etc. The government as a stakeholder and especially the president of the republic as the head of state who has a major role in decision-making on climate change will be considered in this article.

KEYWORDS: Climate change; Maldives; policy.

ACKNOWLEDGEMENTS:

The author would like to thank Dr. Schmidt Muller Di Friedberg who supervised and commented on this research. Thanks to the editors and reviewers who had a great role in developing this article.

1. INTRODUCTION

Global mean sea level has risen about 8–9 inches since 1880, with about a third of that coming in just the last two and a half decades. The rising water level is mostly due to a combination of meltwater from glaciers and ice sheets and the thermal expansion of seawater as it warms.

In urban settings along coastlines around the world, rising seas threaten the infrastructure necessary for local jobs and regional industries. Roads, bridges, subways, water supplies, oil and gas wells, power plants, sewage treatment plants, landfills, etc. They are all at risk from sea-level rise (SLR) (Lindsey, 2021).

Predicted SLR caused by anthropogenic climate change threatens to drastically alter coastlines around the world. In the case of low-lying atoll states, it threatens to expunge them from the map (Armstrong and Corbett, 2021).

The emergence of climate change as a major issue of global concern since the 1980s has led to the accumulation of a vast amount of academic and policy-relevant research attempting to demonstrate, understand, and address the likely effects of climate change on human development (Intergovernmental Panel on Climate Change (IPCC) 2007) (Morrissey, 2009).

SLR has the potential to threaten the very existence of low-lying atoll nations such as the Maldives. Accordingly, the government of the Maldives is responsible to define the vulnerable sectors and create effective policies to mitigate the detrimental effects of climate change. This article will focus on the role of policymakers, especially the government and the president of the Republic of the Maldives who deal with climate change.

2. GEOGRAPHY AND MORPHOLOGY OF THE MALDIVES

The Maldives lies in two rows of atolls in the Indian Ocean, just across the equator. The country is made up of about 1,190 coral islands formed around 26 natural ring-like atolls, spread over 90,000 square kilometers. These atoll structures are formed upon a sharp ridge rising from the ocean, thereby creating their worldwide uniqueness (Embassy of Maldives-Brussels, 2021).

Not all islands are inhabited. In fact, only about 200 islands are inhabited. The rest are used for various activities the most important of which is tourism.

For politicians and environmentalists around the world, the Maldives is perhaps better known as islands drowning with the rising sea levels as a result of global warming. For reef scientists, the Maldives is known as one of the wonders of the world in terms of biodiversity, marine life, and reef formations. The peculiarity of Maldivian atolls and their unique formation was so intriguing that early reef scientists and geographers decided to

borrow the Maldivian term "*atholhu*" which is now used as "*atoll*" in the English language. (Embassy of the Maldives, 2021)

3. THE GOVERNMENT AND POLITICAL SYSTEM IN MALDIVES

The Maldives has a history of monarchical political systems built on undemocratic constitutional rules that have evolved over eight centuries (1153-1953) of recorded history. The Maldives only established its first-ever democratic constitution in 2008." Using conceptions of historical institutionalism, it is argued that this new constitutional system acquired both democratic institutions and traditionally-transmitted undemocratic norms of political behavior.

The successful efforts of the government to adopt a democratic constitution and hold a multi-party election by the end of 2008 increased the government's legitimacy and credibility within the international community (Rasheed, 2012).

Currently, the government of the Maldives has three branches including executive, judicial and legislative which can be considered as the main powers.

Executive: The president is the head of state and government, and he is the commander-in-chief of the Maldives National Defense Force. The president is elected by absolute majority vote through a two-round system.

Judicial: The Constitutional Court is the highest court in the country when it comes to the interpretation, protection, and enforcement of the Constitution. Judges are appointed by the president in consultation with the Judicial Service Commission, and upon confirmation by voting members of the People's Majlis.

Legislative: The People's Majlis has the authority to enact, amend, and revise laws aside from the constitution. 77 members are elected by plurality vote in single-member constituencies (Global Edge, 2021).

4. POLITICAL ATTITUDES TOWARDS CLIMATE CHANGE

We can track down the initiation of the policy formulation process by the governance of president Maumoon Abdul Gayoom (Ministry of Housing and Urban Development, 2008). He was approved as president in a referendum on September 30, 1978, and he was inaugurated on November 11, 1978 (University of Central Arkansas, 2013).

It is not clear how was his attitude toward climate change and SLR. Because climate change and the related topics were not so trendy, and they

were not assumed as an imminent hazard during the early ages of his presidency. Just in the last years of his presidency, he had several interviews and speeches in which he underlined the importance of climate change. In 2007, in an interview with Reuters, Gayoom said "If climate change continues unchecked, local mitigation measures will not be sufficient to safeguard my people" (Gardner, 2007).

A few months later, confronting the climate crisis became Nasheed's key device for fulfilling the promise of a new democratic politics and His rise to the presidency in 2008. Nasheed was preparing to relocate the nation to India, Sri Lanka, or Australia. "We can do nothing to stop climate change on our own", he announced, "so we have to buy land elsewhere". Four months later, he would unveil his plan to make the Maldives the world's first carbon-neutral state. Nasheed complemented his language of neoliberal technocracy with the language of war. The fight against climate change had to be a world war effort. On February 8, 2012, internal tensions came to a head. Nasheed resigned in the wake of mass protest and mounting political violence, in what he called a "coup" (Hirsch, 2015).

In 2015, during the presidency of Abdulla Yameen Abdul Gayoom, the ministry of environment and energy published "the Maldives climate change policy framework". The framework was developed through consultation with representatives of the general public, government institutions, the private sector, non-governmental organizations, and other parties, as well as an extensive array of stakeholders, in order to take into account a wide variety of relevant objective facts, knowledge, and opinions as possible (Ministry of Environment and Energy, 2015). Three years later, Yameen was defeated by joint opposition candidate Ibrahim Mohammed Solih in the 2018 presidential election (British Broadcasting Company, 2018).

In 2019 President Ibrahim Mohamed Solih became the first Maldivian head of state to speak at the United Nations, "While the scientific evidence is irrefutable, there has been an alarming lack of global action. According to the Intergovernmental Panel on Climate Change, if the mean temperatures continue to rise above the two degrees threshold we will be faced with a point of no return. While the Paris Agreement on Climate Change was a breakthrough for what we could collectively achieve, so much more needs to be done" he said (Maldives Independent, 2019).

Despite the dissension between the parties and politicians, there is consistency in policy regarding the imminent danger of climate change and SLR. Apparently, they realized the imminent hazard and they show their will to provide an effective solution. Regularly, the politicians have

different ways to deal with climate change and different political interests clearly play a role in how environmental narratives are produced, circulated, and interpreted. Specifically, the risks of climate change to the Maldives are being emphasized to justify resettlement policies (Kothari, 2014).

5. CLIMATE CHANGE AND THE MALDIVIAN GOVERNMENT

Table 1. Climate Change Vulnerabilities of the Maldives. Source: Ministry of Environment and Energy (2015).

SECTOR	VULNERABILITY
COASTAL ZONE MANAGEMENT	<ul style="list-style-type: none"> Over 80% of the total land area of the Maldives is less than 1 m above mean sea level. Approximately 44% of the settlement footprints of all islands are within 100 m of the coastline More than 50% of the housing structures in 121 islands are within 100 m of the coastline More than 67% of inhabited islands reported beach erosion in 2013 at different scales and of different severity. The adaptation measures to mitigate erosion in the islands, due to its lack of planning and poor design have lead to increased maladaptation countrywide
CRITICAL INFRASTRUCTURE	<ul style="list-style-type: none"> The infrastructure of the four international airports are within 50 m of the coastline. More than 90% of all resort infrastructure and 99% of all tourist accommodation are within 100 m of the coastline Approximately 70% of all fisheries infrastructure is within 100 m of the coastline Utility facilities including most powerhouse and waste facilities are located within 100 m of the coastline. More than 75% of communications infrastructures are located within 100 m of the coastline
TOURISM	<ul style="list-style-type: none"> Nearly 45% of tourist resorts have reported varying degrees of beach erosion. Rise in temperature leads to coral bleaching, loss of beach, saltwater intrusion and loss of tropical vegetation. Maldivian tourism product is based on sea, sand and sun. Adverse impacts on climate variability will have negative consequences to the tourism industry.
FISHERIES	<ul style="list-style-type: none"> During the 1997/1998 El Niño event the Indian Ocean purse seine fishery shifted to the east, unlike other years, owing to the elevated depth of the 20°C isotherm Over the last few years ocean temperature changes has lead to the transformation of the biophysical conditions of the pelagic environment, resulting in decreased tuna catch in the islands.
HUMAN HEALTH	<ul style="list-style-type: none"> Changes in temperature and rainfall regimes are causing higher incidence of vector-borne diseases. There is evidence that dengue outbreaks are becoming more frequent and it appears that there is an association with El Niño Southern Oscillation events. The vulnerability to climate change-related health risks is further compounded by local characteristics such as the level of malnutrition in children, accessibility and quality of healthcare, high population congestion and low income levels Climate change-related impacts on fisheries and agriculture threaten food security in the Maldives. Such impacts will have a direct effect on the nutrition status of children and overall health of the population.
WATER	<ul style="list-style-type: none"> Rainwater is the main source of potable water in the outer islands. After the 2004 Indian Ocean Tsunami, there is observed increased demand of bottled water as drinking water, mainly associated with groundwater contamination and reduced precipitation. 7 out of 196 inhabited islands including Capital Male' have access to piped desalinated water.
AGRICULTURE AND FOOD SECURITY	<ul style="list-style-type: none"> The total cultivable land area is estimated at 27 km², including 18 km² on inhabited islands and 9 km² on uninhabited islands The agriculture sector is constrained by the limited availability of cultivable land, poor quality of soil and the abundance of cheap imports of vegetables and fruits Due to the high import dependency, the food security of Maldives is vulnerable to climate change-related impacts on the agriculture of other countries Heavy import dependency, limited food storage and ad hoc distribution also pose severe food security risk to the population. The Maldives imports almost all food items except fresh tuna and coconut. Long-term and emergency food storage is virtually absent except for warehousing in Male' and nine other islands

Local governments face a number of issues when planning for future SLR. SLR may accelerate the erosion of coastal margins, threatening land and property (Walsh, 2004).

Since climate change is a cross-cutting development issue and affects every aspect of the Maldivian way of life and livelihoods, the Maldivian government attempted to address vulnerable sectors. Therefore, the ministry of environment and energy published “the climate change policy framework” (Table1) (Ministry of Environment and Energy, 2015).

The government also defined several strategies that could prevent the country from the negative effects of climate change and SLR. According to the strategic framework, there are two parts including the strategic components and the building blocks that would potentially result in the sustainability of the Maldives (Figure 1).

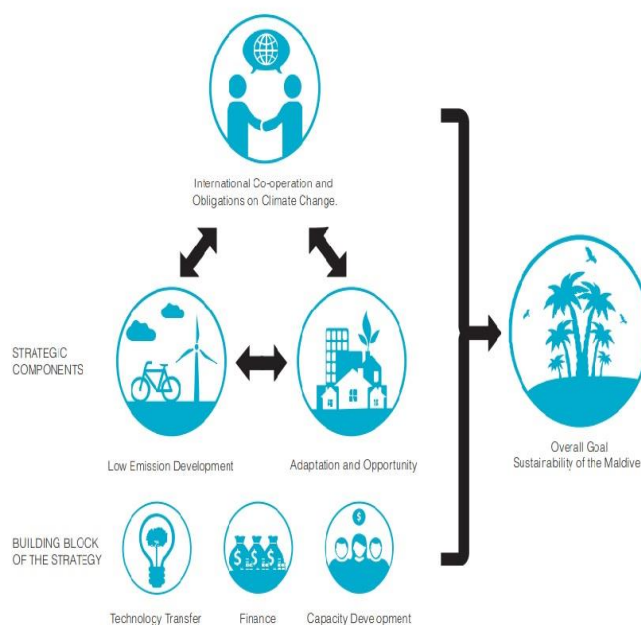


Figure 1. The Strategic Framework. Source: Ministry of Environment and Energy (2015).

The strategic components encompass the following:

Low emission development: To help to achieve stabilization of greenhouse gases concentrations in the atmosphere.

Adaptations and opportunities: Natural ecosystem adaptation to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

Obligation and commitments: Meeting international obligations and commitments.

The building blocks consist of technology transfer, finance and capacity development which are essential for the implementation of the framework.

Aims of the Framework

The framework has several goals including:

- Foster and guide a national plan of action to address current, short-, medium-, and long-term effects of climate change.
- Set out the strategic priorities for scaling up the commitments of the government to respond to the adverse impacts of climate change.
- Promote a coordinated approach amongst all national stakeholders to strengthen the capacity of Maldives to reduce current and projected climate change impacts and risks such as the risks of loss of land and life, and damage to the environment and property.
- Build and strengthen existing policies, plans, and institutional structures and incorporate those into every sector's development and implementation plans for addressing climate change issues (Ministry of Environment and Energy, 2015).

In order to reach the mentioned goals, considering stakeholder interaction is a key strategy in research and policy-making on climate change adaptation. Thus, engaging stakeholders in research or other projects on adaptation requires careful mapping of the stakeholder landscape and identification of relevant actors at different levels (André, 2012).

6. THE INTERACTION BETWEEN THE MALDIVIAN GOVERNMENT AND STAKEHOLDERS

Arguably, everyone is a stakeholder of climate change and stakeholders are variously characterized as authorities (federal, state, local government), evaluators (scientists, medical professionals, universities) watchdogs (news, media, environmental groups), local communities, etc. (Lindell, 2007).

The emergence of complex socio-environmental challenges such as climate change adaptation, sustainable development, and disaster risk reduction has coincided with calls for more integrative and participatory

approaches to scientific research (Thompson, 2017). As well as news and media can put environmental hazards on the public agenda and educate those who do not have direct experience with disasters (Prater, 2000). In the context of adaptation, it is important to analyze stakeholder influence and interest because it determines to what extent and how adaptation can be realized. It is now widely recognized that stakeholder interaction is essential to improve decisions about and awareness of climate change (André, 2012). Hence, the Maldivian government signed several contracts with the stakeholders including institutions and media. One of the agreements that have been signed recently is the agreement between the MaRHE center and the University of Milano-Bicocca.

The Government and Institutions- the Agreement with the University of Milano-Bicocca

In 2021, the University of Milano-Bicocca and the government of the Republic of Maldives came together for the protection of the coral reef. A partnership to reach new important goals on the issues of sustainability and biodiversity.

In the meeting, the rector of the University, Giovanna Iannantuoni, and the Minister of Fisheries, Agriculture, and Marine Resources of the Republic of Maldives, Zaha Waheed signed the agreement and officially launched the project for the development of collaborative research lines.

The agreement is part of a larger project. Since 2009, the University of Milan-Bicocca, thanks to the MaRHE research and advanced training center, in collaboration with the Maldives Marine Research Institute, which is affiliated with the government of the archipelago, studies new solutions for the protection of corals and for the protection of the marine environment such as coral restoration based on the selection of "**super-coral**" - a generation of corals that can withstand climate change (University of Milano-Bicocca, 2021).

Media- A Tool for the Government

Media plays a key role in communicating risks and shaping particular angles of interpretation. In an attempt to effectively engage the public, visual and emotionally-based appeals are frequently employed within the environmental movement. For example, several movies such as "The Day After Tomorrow" (2004), "An Inconvenient Truth" (2006), and "The Age of Stupid" (2009), have increased people's perceptions of climate risks (Howell, 2011).

Governments also use media to acquaint people with climate change and its effects. The Maldivian leaders have played a crucial role in bringing climate change vulnerabilities and sustainable development challenges facing island nations to the world's attention. Media stunts such as an underwater cabinet meeting, as well as the documentary film "The Island President" (2012), starring former president Nasheed, have further highlighted the country's climate change risks (Shakeela, 2014).

While media can be a useful tool for the government and policymakers to communicate with people, there is increasing concern amongst the Maldivian population that climate change is increasingly being used as a political tool by opposing political parties (Kothari, 2014).

7. DISCUSSION

Since climate change is a serious issue for sustainable development, defining vulnerable sectors is the preliminary action that should be taken by the governments. In the next steps, considering the stakeholders involved in climate change and determining efficient strategies is required. Potentially, everyone is a stakeholder of climate change and stakeholders can be divided into different groups such as local communities, governments, scientific institutions, media, etc. The government as a stakeholder should clarify their attitude toward the imminent hazard and we are able to detect the initiation of the policy formulation process in the last years of Maumoon Abdul Gayoom presidency and the implementation of climate change-related policies by the subsequent presidents.

Although different parties and politicians had different attitudes and ideologies, there was a common sense which led them to recognize the SLR as a momentous hazard.

8. CONCLUSION

Sea-level rise threatens low-lying atoll nations such as the Maldives and this paper has taken a novel approach by assessing how policymakers, especially the president of the republic as the head of state, may deal with climate change and SLR. Hazard mitigation policy is a major political challenge facing hazard-prone communities. Policy adoption is a complex process that begins with the recognition of a problem and its emergence on the agendas of different stakeholders. Therefore, analyzing stakeholder relevance and capacities is important because it lays the foundation for further analysis and understanding of adaptation processes and the necessity of involving many different stakeholders.

The formulation of hazard mitigation policy is facilitated by a focusing event such as a disaster but must be initiated even before one occurs to ensure that feasible solutions are available for adoption when an opportune moment arrives. Thus, recognizing vulnerable sectors and stakeholders should be the first step for policymakers. The government and especially the president of the state have a significant role as a stakeholder since all other stakeholders such as media and institutions can be affected by their decisions.

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